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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/525,487	02/23/2005	Martin Dieter Liess	NL020808US	4982

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EXAMINER

KARIM L. PEGEMAN

ART UNIT

PAPER NUMBER

2629

MAIL DATE

DELIVERY MODE

10/16/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary**Application No.**

10/525,487

Applicant(s)

LIESS, MARTIN DIETER

Examiner

PEGEMAN KARIMI

Art Unit

2629

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 July 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SF/ICE)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Response to Amendment

1. The amendment filed on 07/08/2008 has been entered and considered by the examiner.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Liess (WO 02/37411 A1) in view of Printzis (U.S. Patent 6,525,677) and further in view of Garcia (U.S. Patent No. Re. 33,422).

As to claims 1, 19, and 20, Liess teaches an apparatus (120) comprising an optical input device (129') controlled by a moving object (finger, 15) near a window (12) and an optical keyboard (121), the claimed "optical keyboard" is so broad that it can be read in the keyboard 112 or 121),

wherein the optical input device (device of fig. 5a, and can be seen in a different angle in fig. 5b) comprises at least two optical sensor units (4 and 6) comprising at least two diode lasers (3 and 5) for supplying at least two measuring beams (13 and 17, page 12, lines 4-5) and converting means (photo diode, 4) for converting measuring beam radiation reflected by the object into an electric signal (Page 12, lines 14-16),

which converting means (4 and 6, fig. 6) are constituted by the combination of a laser cavity (20) and

measuring means (4 and 6) and for measuring changes in operation of the laser cavity (Page 12, lines 12-16), which are due to interference of reflected measuring beam (26) radiation re-entering the laser cavity and the optical wave in this cavity and which are representative of the movement of the object (Page 12, lines 25-34, Page 13, lines 1-5), wherein at least two paths of the at least two measuring beams (first path = path of measuring beam 13; second path = path of measuring beam 17) from the at least two diode lasers (3 and 5) to the window (12) extend through at least two light guides of the optical keyboard (Fig. 15a clearly shows light beams from diode lasers 3, 5, and 7 are guided to the window by optical fibers 72, 73, and 74) and passing through the window (as can be seen in Fig. 15a, the laser beams are guided to the window/cap 78 and pass through).

Liess does not mention the paths include mirrors. Printzis teaches at least two paths including mirrors (Horizontal path of 424 has mirrors 404, 406, and 408), vertical path of 426 has mirrors 430, 432, and 434), (Fig. 5). Therefore it would have been obvious to one of ordinary skilled in the art at the time the invention was made to have added the mirrors of Printzis to the at least two light guides of the optical keyboard of Liess because to have the light beams transmit to the window through a light path without interfering with each other.

Printzis teaches each key of the optical keyboard (e.g. 1, 2, 3, ..., J, K, and L) along said at least two paths (first diagonal path covering keys 1, 2, 3, ..., and #; second diagonal path covering keys A, B, C, ..., and L).

Liess and Printzis do not mention each key is associated with only a single path. Garcia teaches each key of the optical keyboard (keys associated with reflective sections 133-136) is associated with only a single path (path connecting the LED light to the reflective section, e.g. 133-136), (Fig. 7). Therefore it would have been obvious to one of ordinary skilled in the art at the time the invention was made to have added the reflective surface of keys to one of the light paths of Printzis to modify the optical input device of Liess, these keys can be modified by only one path because when the button is fully depressed, the plunger provides space between the bottom of the plunger and the bottom of the wave guide so that light traveling in the column or row is permitted to pass and thereby to detect any other keys that have been depressed in the particular column (abstract, lines 20-24).

As to claim 2, Liess et al. does not teach measuring beam of the first and second sensor. Printzis (Fig. 1) teaches the apparatus wherein the at least two sensor units (134 and 132), which are arranged relative to the optical keyboard (col. 5, lines 46-47 and lines 57-59) such that the at least two measuring beams pass on their way to the device window (i.e. 320, 322, 324, 318, etc.), (the window is the surface area of a cavity 200, fig. 2, located at a key location within the keypad, which has a top opening for a user to insert a finger) the positions of a first set of keys and the positions of a second

set of keys (col. 3, lines 40-42, and col. 4, lines 26-30), respectively, the first set and the second set (rows and columns) together comprising all keys to be controlled (see Fig. 1). Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to have provided the two sensor units of Printzis to the input device of Liess because the two sensors of Printzis configured to respond to a change in a received light quantity and to provide an electrical signal in response to a selection of a key at a key location (col. 14, lines 29-32).

As to claim 3, Printzis teaches the optical input device comprises at least three sensor units (410, 412, 416), which are arranged relative to the optical keyboard such that at least three measuring beam of first (410), second (412) and third sensor (416) units pass on their way to the device window (col. 12, lines 43-48), positions of a first, a second and a third set of keys (row, column and diagonal), respectively, the first, second and third set comprising all keys to be controlled (See Fig. 5).

As to claim 4, Liess et al. (Fig. 12) teaches the at least one sensor unit of the two sensor units (4) is adapted to measure both a scroll movement and a click movement (Page 23, lines 13-17) and provided with additional means (7, 8, etc), which allow establishing the presence of an object on the window of the device (Fig. 12, the 3rd diode laser and photo sensor senses the presence of object 15 and outputs a click).

As to claim 5, Liess teaches the additional means (4, 22, 21, etc.) are constituted by means for establishing whether the reflected measuring beam radiation (4), (Page 12, lines 29-30) shows an amplitude variation of a frequency (Laser radiation)

lower than the frequencies of variations caused by a scroll movement (re-entering radiation), (Page 15, lines 33-34 and Page 16, line 1).

As to claim 6, Liess teaches at least one sensor unit (Fig. 5a) comprises a first radiation-sensitive detector (monitor diode, 6) for measuring variations in the laser cavity (Page 14, lines 10-14), wherein the additional means (10, 12, 18, etc.) is constituted by a second radiation-sensitive detector (4) arranged for receiving measuring beam radiation (Page 12, lines 12-16), which is non-incident on the laser cavity (Fig. 6, Photo diode 4 is located outside of the laser cavity).

As to claim 7, Liess teaches the additional means (18, 19) are constituted by electronic means (8, 7) for detecting a component in an output signal of said measuring means (Z-direction, Page 17, lines 23-27).

As to claim 8, Liess teaches at least one sensor unit (Fig. 5a) is activated by activation pulses (Page 16, lines 29-32) and;

the measuring means (photo diodes) perform measurements during time intervals determined by the activation pulses (first and second half periods, page 16, lines 26-28), wherein

the additional means comprises counting means and comparing means (Electronic processing circuit) to establish whether a number of undulations in the output signal (forward or backward direction) measured during a first half and a second half of a said time interval are equal (Page 15, lines 23-24).

As to claim 9, Liess et al. discloses the measuring means (4 and 6) of the optical input device are means for measuring a variation of an impedance of the laser cavity (Page 12, lines 12-16)

As to claim 10, Liess teaches the measuring means is a radiation-sensitive detector (4 and 6) for measuring radiation emitted by one laser diode (3), (Page 12, lines 12-14) of the at least two diode lasers (3 and 5).

As to claim 11, Liess (Fig. 6) teaches a radiation-sensitive detector (4) is arranged at the rear side of the laser cavity (Page 12, lines 21-23).

As to claim 12, Liess teaches the second detector (6) is arranged at a side of the laser cavity (measuring beam and second detector are located side by side on the base) where the measuring beam is emitted (5).

As to claim 13, Liess et al. discloses the apparatus is a mobile phone (80), (Page 8, lines 30-32).

As to claim 14, Liess et al. discloses the apparatus is a cordless phone (80), (Page 8, lines 30-32).

As to claim 15, Liess et al. discloses the apparatus is a laptop computer (110), (Page 8, lines 30-32).

As to claim 16, Liess et al. discloses the apparatus is a hand-held computer (110), (Page 8, lines 30-32).

As to claim 17, Liess et al. discloses the apparatus is a keyboard for a desk computer (121), (Page 8, lines 30-32).

As to claim 18, Liess et al. discloses the apparatus is a remote control for a TV set (107), (Page 8, lines 30-32).

As to claims 21, 22, and 23, Liess et al. teaches the at least two guides (72, 73, and 74) are independent from each other and meet only at the window (the fiber optics are independent from each other and connect to diodes 3, 5, and 7; the fiber optics meet at the top of the window/cap), (fig. 15a).

Response to Arguments

4. Applicant's arguments with respect to claims 1-23 have been considered but are moot in view of the new ground(s) of rejection.

The new reference of Garcia has been added to read on the new limitations.

Applicant argues that the new limitation of "each key of the optical keyboard along said at east two paths is associated with only a single path of said at least two paths" is not taught by Liess or Printzis. The new reference of Garcia (U.S. Patent No. Re. 33,422) teaches each key of the optical keyboard of Fig. 3 is associated with only a single path (path from 133 to the receiver R1 among other paths. This limitation modifies the invention of Printzis by adding the reflective surfaces of keys to the light path of Printzis for examples adding the reflective surfaces to path 424 and having the reflective surfaces reflect the light to light path way 426. so, the keys are associated with the light path of 424.

The new limitation added to the independent claims is broad and can be read as each key has at least two paths and each key is associated with only one of them. The relation between “each key” and “only a single path” should be explained in more details.

Conclusion

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Inquiry

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to PEGEMAN KARIMI whose telephone number is

(571)270-1712. The examiner can normally be reached on Monday-Thursday 8:00am - 5:00pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chanh Nguyen can be reached on (571) 272-7772. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Pegeman Karimi/
Examiner, Art Unit 2629
October 10, 2008

/Chanh Nguyen/
Supervisory Patent Examiner, Art
Unit 2629